AMENDMENTS TO THE DRAWINGS

The attached sheet of drawings includes changes to FIG. 2. This sheet, which only includes FIG. 2, replaces the original sheet. In FIG. 2, the labels sin ω and cos ω have been corrected to read sin ωt and cos ωt respectively.

Attachment: Replacement Sheet

Annotated Sheet Showing Changes

REMARKS/ARGUMENTS

This amendment is in response to the Office action mailed May 10, 2005. As of the Office action mailed May 10, 2005, claims 1-3 are pending with all claims standing rejected. Reexamination and reconsideration of the application as amended and in view of the remarks herein is respectfully requested.

Prior to filing the instant amendment, Applicants filed a petition under 37 C.F.R. 1.78(a)(3) seeking the entry of an unintentionally delayed claim of benefit of a prior filed application. As part of the petition an amendment was submitted amending the Cross-Reference to Related Applications to indicate that the present application is also a continuation-in-part of U.S. patent application Serial No. 10/314,911, filed December 9, 2002. The amendment to the Cross-Reference to Related Applications is not reflected in this paper.

Priority

The error in the originally filed Declaration noted by the Examiner, i.e., the clerical error in the filing date of the provisional application, of which this application claims the benefit, is noted.

Drawings

The drawings were objected to because, in FIG. 2, the outputs of the quadrature oscillator were incorrectly labeled sin ω and cos ω. FIG. 2 has been amended herein to correctly label the outputs to read sin ωt and cos ωt respectively. No new matter is believed entered by this amendment.

The drawings were also objected to because the Examiner found it unclear which components in the circuit 203 comprise the modulator and which components comprise the PWM generator circuit. The application has been amended herein to consistently designate the block 203 of FIG. 2 as "phase angle pulse modulation circuit." Accordingly, it is not believed necessary to delineate a separate modulator circuit and a separate PWM generator circuit. The objection to the drawings on this basis are believed rendered moot by the above amendment.

Specification

The title of the invention was objected to as not being descriptive. As suggested by the Examiner, the title of the invention has been amended to read "Angular Position Sensing Using Pulse Width Modulation." Withdrawal of the objection to the title is respectfully requested in view of this amendment.

The specification was objected to because the terms "phase angle pulse modulation circuit" and "modulator and PWM generator circuit" were both used in connection with block 203 of FIG. 2. The specification has been amended at page 5, line 16 and page 6, lines 5 to replace the term "modulator and PWM generator circuit" with the term "phase angle pulse modulation circuit" thereby consistently referring to block 203 as "phase and pulse modulation circuit." Withdrawal of this objection to the specification is respectfully requested in view of the foregoing amendment.

The specification has also been amended on page 5, line 22 to correct a minor clerical error whereby the reference numeral for the center axis was incorrectly stated. Specifically, the specification was amended to replace "center axis 246" with --center axis 247-- as indicated in FIG. 2. No new matter is believed entered by this correction.

Claim Amendments

Claim 1 has been amended to recite, in part, "a first multiplier configured to receive an input from a first of said magnetic field sensors and a first sinusoidal signal and provide a first output; a second multiplier configured to receive an input from a second of said magnetic field sensors and a second sinusoidal signal and provide a second output; an adder circuit configured to sum said first and said second outputs and provide a third output being the sum of the first output and the second output; and an output circuit configured to receive said third output and provide a fourth output having a characteristic proportional to said phase angle." Support for this amendment can be found, for example, in FIG. 2 and the associated description on pages 5-7. No new matter is believed entered by this amendment.

Claim 3 has been amended to read consistently with amended claim 1. No new matter is believed entered by this amendments.

New claims 8-13 have been added. Support for these new claims can be found, for example, in FIG. 2 and the associated description on pages 5-7. No new matter is believed introduced by these new claims.

Claim Objections

Claims 1 and 3 were objected to because the phrase "a phase angle pulse modulation circuit and PWM generator circuit" is unclear. This term has been removed from the claims, thereby rendering this objection moot.

Claim 1 was also objected to because the phrase "rotary sensor" was found to be unclear by the Examiner. As recommended, the phrase has been replaced by --a rotary sensor--.

Claim 3 was additionally objected to because the term "adapted to" was considered unclear by the Examiner. Claim 3 has been amended as recommended by the Examiner. For example, "adapted to multiply" has been replaced with --which multiples--. Claim 3 was also objected to because the phrase "said phase multiplier" lacked proper antecedent basis. This phrase has been deleted from the claim rendering this objection moot.

In view of the foregoing amendments and comments, it is respectfully submitted that all of the objections to the claims have been overcome. Withdrawal of the objections to the claims is respectfully requested.

Rejections Under 35 U.S.C. §103

Claims 1 and 2 were rejected under 35 U.S.C. §103(a) as being objection over Dukart et al. (U.S. Patent No. 5,880,586) in view of Madni et al. (6,304,076). This rejection is overcome for the following reasons.

Independent claim 1 has been amended to recite, in part, "a first multiplier configured to receive an input from a first of said magnetic field sensors and a first sinusoidal signal and provide a first output; a second multiplier configured to receive an input from a second of said magnetic field sensors and a second sinusoidal signal and provide a second output; an adder circuit configured to sum said first and said second outputs and provide a third output being the sum of the first output and the second output; and an output circuit configured to receive said third output and provide a fourth output having a characteristic proportional to said phase angle." Applicant respectfully submits that neither Dukart et al. nor Madni et al. teaches or suggests these features. Accordingly, all of the limitations of claim 1, as amended herein, are neither taught nor suggested by the teachings of either reference or by the combined teachings of the two

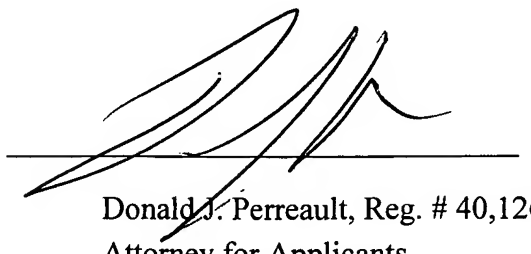
references together. Withdrawal of this rejection upon consideration of the amendments herein is respectfully requested.

Claim 3 was rejected under 35 U.S.C. §103(a) as being obvious over Dukart et al. in view of Madni et al., and further in view of Miyazaki (JP601162920A). In view of the amendments herein, Applicants respectfully submit that the combined teachings of the primary references are insufficient to render independent claim 1, upon which claim 3 depends, obvious. The further consideration of Miyazaki does not remedy these deficiencies. Accordingly, withdrawal of the rejection of claim 3 is respectfully requested in view of the amendments herein.

Having overcome all of the outstanding rejections, it is respectfully submitted that the application is now in condition for allowance. Early and favorable action is respectfully solicited.

In the event that there are any fee deficiencies, or additional fees are payable, please charge, or credit any overpayment to, our Deposit Account No. 50-2121.

RESPECTFULLY SUBMITTED,



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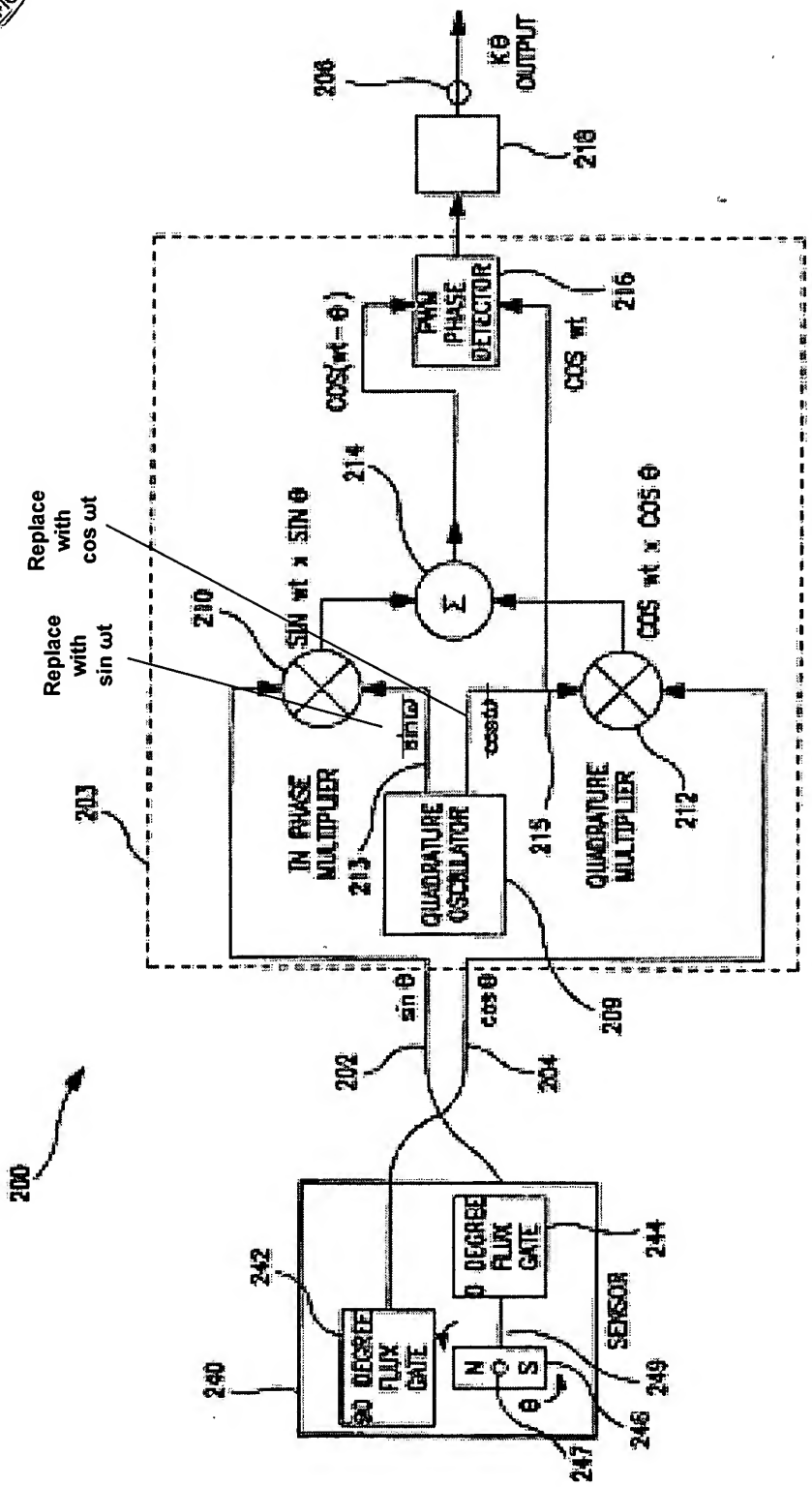

FIG. 2